THE TAMIL NADU DR.M.G.R. MEDICAL UNIVERSITY

[MD 0524] **MAY 2024** **Sub. Code: 4007**

M.D. DEGREE EXAMINATION

BRANCH III – PATHOLOGY

PAPER III – HAEMATOLOGY, TRANSFUSION MEDICINE (BLOOD BANKING) AND LABORATORY MEDICINE

Q.P. Code: 204007

Time : Three Hours **Maximum : 100 Marks**

I. Essay: **(2 x 15 = 30)**

1. Discuss laboratory investigation and prognostic factors in Acute lymphoblastic leukemia.

2. Discuss the pathogenesis and diagnostic work-up of Sickle-cell Anemia.

II. Write short notes on: **(10 x 5 = 50)**

1. Heparin-induced thrombocytopenia.
2. Myelodysplastic syndrome.
3. Autologous Blood transfusion.
4. Congenital Dyserythropoeitic anemia.
5. Coagulation profile.
6. G6 PD deficiency.
7. Lab diagnosis of hemoglobinopathies.
8. Quality control in blood banking.
9. Hematologic manifestations of HIV infection.
10. Hemolytic uremic syndrome.

III. Reasoning Out: **(4 x 5 = 20)**

1. A 43-year-old male presents with fatigue, lightheadedness and recurrent episodes of passage of dark, smoky urine for last one and half years. O/E: Mild pallor with mild hepatomegaly.
   a) What is your provisional diagnosis?
   b) What are other possibilities?
   c) What is the pathophysiology?
   d) How can you confirm your diagnosis? What are the complications?

2. A 22-year male comes to emergency with epistaxis. He has similar attacks before. O/E- small raised telangiectatic spots are seen over oral mucosa. Family history reveals bleeding manifestations in older brother.
   a) What is your provisional diagnosis?
   b) What is the genetic abnormality seen?
   c) How will you confirm your diagnosis?

3. A 40 yr old female came to the medical outpatient department with a history of tiredness and fatigue on mild exertion. On examination she had pallor of the conjunctiva and tongue and her pulse was 84/min. There were no other positive findings.
   a) What is the most likely diagnosis?
   b) What are the common reasons for this condition in a female?
   c) How do you classify this condition?
   d) List the first line of investigation?

4. 30 year old male presented to the OPD with recurrent hemarthrosis with progressive crippling deformity of the right knee joint.
   a) What is your diagnosis?
   b) What is the pattern of inheritance and mutation?
   c) What are the laboratory investigations performed to confirm the diagnosis?

****

[MD 0524]

THE TAMIL NADU DR.M.G.R. MEDICAL UNIVERSITY

[MD 1224] **DECEMBER 2024** **Sub. Code: 4007**

(OCTOBER 2024 EXAM SESSION)

M.D. DEGREE EXAMINATION

PATHOLOGY

PAPER III – HAEMATOLOGY, TRANSFUSION MEDICINE (BLOOD BANKING) AND LABORATORY MEDICINE

Q.P. Code: 204007

Time : Three Hours **Maximum : 100 Marks**

I. Essay: **(2 x 15 = 30)**

1. Classify Aplastic Anemia. Discuss the pathophysiology, diagnostic criteria and differential diagnosis of Aplastic Anemia.

2. Classify Non-Hodgkin Lymphoma. Discuss the approach to diagnosis of the same. Add a note on cutaneous T cell lymphomas.

II. Write short notes on: **(10 x 5 = 50)**

1. Screening tests for Hemoglobinopathies.
2. Pathophysiological and diagnostic criteria for Hemophagocytic Lymphohistiocytosis.
3. HLA typing.
4. Tumor lysis syndrome.
5. Laboratory findings in Von Willebrand disease.
6. Transfusion associated graft versus host disease.
7. Cryoprecipitate.
8. Preparation and storage of platelet concentrate.
9. Technique for demonstrating fungi in histology.
10. Automation in urine analysis.

III. Reasoning Out: **(4 x 5 = 20)**

1. 3-year-old male child presented with history of fever, weakness, epistaxis and vomiting O/E the child was pale with generalized lymphadenopathy and hepatosplenomegaly. Hb – 7g/dl, WBC 85000/µl. Peripheral smear – Leukocytosis with 40% lymphoblasts.
   a) What is the diagnosis?
   b) Further investigations needed.
   c) Prognostic factors.

2. 60-year-old man with 1 week history of jaundice and cola colored urine. He was given nitrofurantoin for Urinary tract infection 1 week ago. Investigations – Hb – 7g/dl, MCV 97fl TLC 6000/µl, Platelets – 255000/µl, Reticulocyte count 3%, Serum LDH 387U/L. Blood smear showed polychromasia and bite cells.
   a) What is the probable hematological problem?
   b) What other test should be done?
   c) What are the triggering factors for the patient's condition?

3. A case of Road Traffic Accident was given transfusion. The patient developed fever, chills, sweating, hypotension and dark urine within 10 minutes of starting the transfusion.
   a) What is the most probable cause?
   b) How with you evaluate the patient?
   c) Preventive measures to avoid such incidents.

4. 10 –year-old previously asymptomatic boy was called for screening after diagnosing a type of hemolytic anemia in a sibling. His HPLC report – HbA 60% & HbS 35%, HbA2 5%.
   a) Interpret the report.
   b) What are the clinical implications?

****

[MD 1224]

THE TAMIL NADU DR.M.G.R. MEDICAL UNIVERSITY

[MD 0525] **MAY 2025** **Sub. Code: 4007**

M.D. DEGREE EXAMINATION

PATHOLOGY

PAPER III – HAEMATOLOGY, TRANSFUSION MEDICINE (BLOOD BANKING) AND LABORATORY MEDICINE

Q.P. Code: 204007

Time : Three Hours **Maximum : 100 Marks**

I. Essay: **(2 x 15 = 30)**

1. Discuss how to approach bleeding diathesis. Enumerate conditions, pathology and investigations in intrinsic pathway abnormalities.

2. Classify Anaemias. Discuss the etiopathogenesis, clinical features and laboratory findings in immune mediated hemolytic anaemias.

II. Write short notes on: **(10 x 5 = 50)**

1. Quality Control in Blood Banks.
2. Plasmapheresis.
3. WHO classification for Acute Myeloid Leukemia.
4. Bombay blood group.
5. Pure Red Cell Aplasia.
6. Laboratory diagnosis of carrier of Haemophilia A.
7. Advantages of automation in urine analysis.
8. Reticulocyte count and its corrected values.
9. Acute leukemia of Ambiguous lineage.
10. Recurrent Venous Thromboses.

III. Reasoning Out: **(4 x 5 = 20)**

1. 30-year female presented with fever, anemia, thrombocytopenia, renal failure and neurological deficits.
   a) What is your diagnosis?
   b) What is the pathogenesis of this condition?
   c) What are the tests done for confirmation?

2. 35-year-old male with headache, dizziness, tinnitus, vision changes, insomnia claudication and intense pruritus. O/E – he was found to be plethoric and cyanosed with hypertension.
   a) What is your diagnosis?
   b) What is the latest WHO 5th edition diagnostic criteria for its diagnosis?
   c) What are the prognostic factors?

3. A 60-year-old female was found to have lytic lesion of vertebra and anemia. M protein value found to be 3.5gm/dl.
   a) What is your diagnosis?
   b) Discuss molecular pathogenesis and morphology of this condition.
   c) What are the tests done to confirm the diagnosis?

4. A 45–year-old male presented with anemia, weakness and dragging sensation in the abdomen. He had massive splenomegaly. His total count is 1,50,000.
   a) What is your probable diagnosis?
   b) Write in detail about the molecular pathogenesis and lab findings.
   c) What are the various phases of this condition?

****

[MD 0525]

THE TAMIL NADU Dr. M.G.R. MEDICAL UNIVERSITY

[MD 1025] **OCTOBER 2025** **Sub. Code: 4007**

M.D. DEGREE EXAMINATION

PATHOLOGY

PAPER III – HAEMATOLOGY, TRANSFUSION MEDICINE (BLOOD BANKING) AND LABORATORY MEDICINE

Q.P. Code: 204007

Time : Three Hours **Maximum : 100 Marks**

I. Essay: **(2 x 15 = 30)**

1. Write in detail about WHO classification of Acute Myeloid Leukemia and write briefly on its flow cytometric diagnosis.

2. Classify Plasma cell neoplasm and discuss its pathogenesis and diagnostic criteria for Multiple myeloma.

II. Write short notes on: **(10 x 5 = 50)**

1. How will you investigate a transfusion reaction?
2. Automations and point of care in hematology lab.
3. Molecular pathology of Myelodysplastic syndrome (MDS).
4. Minimal residual disease in Leukemias.
5. Enumerate new parameters in Blood cell count in automated counters.
6. RBC morphology in Renal disorders.
7. Blood substitutes.
8. Recent advances in Semen analysis.
9. Thromboelastography and its significance.
10. IgG 4 related diseases.

III. Reasoning Out: **(4 x 5 = 20)**

1. 45-year-old male treated with chloramphenicol for enteric fever 3 weeks back presented with severe pallor, sternal tenderness, nasal bleeding and high fever.
   a) What is your diagnosis?
   b) Describe your expected peripheral smear and bone marrow findings in this case.
   c) What other causes can give rise to similar peripheral smear findings?

2. 2-year-old girl is brought to emergency with severe epistaxis for one day. O/E there are presence of multiple petechial spots over trunks and extremities without any hepatosplenomegaly or lymphadenopathy. History reveals an attack of common cold two weeks before.
   a) What is your provisional diagnosis?
   b) Discuss the pathophysiology.
   c) How can you confirm your diagnosis?

3. A 40-year-old male with anterior mediastinal mass, presented with Myasthenia gravis.
   a) What is your provisional diagnosis?
   b) How do you classify this lesion?
   c) What are the Hematological diseases associated with this tumour?

4. A 4–year-old girl has received regular blood transfusions since infancy. Routine blood examination shows: Hb – 3.8 gm%; Total RBC – 3.1 million/cumm; Total platelet count: - 1,96,000/cumm; Differential Count – N36, E03, B00, L59, M02. RBC series: Microcytic hypochromic anaemia with target cells and polychromasia; Normoblast: 20/100.
   a) What is your provisional diagnosis?
   b) Discuss molecular genetics.
   c) How can you confirm your diagnosis?

****

[MD 1025]

THE TAMIL NADU Dr. M.G.R. MEDICAL UNIVERSITY

[MD 0526] **MAY 2026** **Sub. Code: 4007**

M.D. DEGREE EXAMINATION

PATHOLOGY

PAPER III – HAEMATOLOGY, TRANSFUSION MEDICINE (BLOOD BANKING) AND LABORATORY MEDICINE

Q.P. Code: 204007

Time : Three Hours **Maximum : 100 Marks**

I. Essay: **(2 x 15 = 30)**

1. Describe and classify myelodysplastic syndrome. Discuss the etiopathogenesis. Describe peripheral blood and bone marrow findings.

2. Write in detail about complications of blood transfusion. Add a note on component therapy.

II. Write short notes on: **(10 x 5 = 50)**

1. JAK 2 mutations.
2. Burkitt's lymphoma.
3. Hypersplenism.
4. Bone marrow transplant.
5. Minimal residual disease in leukemia.
6. WBC histogram.
7. Quantitative buffy coat.
8. Kikuchi's disease.
9. Platelet function disorders.
10. Screening tests for Hemoglobinopathies.

III. Reasoning Out: **(4 x 5 = 20)**

1. 30-year female presented with sore throat, fever, cervical lymphadenopathy. Blood count revealed lymphocytosis and reactive lymphocytes in a smear. Serological investigation was done for confirmation.
   a) What is your diagnosis?
   b) Prognosis factors.

2. A 40-year-old male presented with painless axillary and cervical lymphadenopathy. Lymph nodes are rubbery in consistency. He had fever and weight loss more than 6 kg.
   a) What is your most probable diagnosis?
   b) How do you stage the disease?
   c) How do you classify based on morphologic immunophenotype.

3. 25-year-old woman born out of consanguineous marriage, presented with ulcer discolouration, itching of lower limb. On examination she had splenomegaly with features of anemia.
   a) What is your diagnosis?
   b) Pathogenesis and morphological changes.
   c) What are the other tests to confirm the diagnosis?

4. One year-old child presented to OPD with H/O bleeding gums. O/E oculocutaneous albinism, pancytopenia. Lab investigations revealed anemia, neutropenia and thrombocytopenia with large inclusions (granules) in neutrophils and monocytes.
   a) What is your probable diagnosis?
   b) Pathogenesis of the condition?

****